



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,756	09/10/2003	Martin Alm	2380-785	3405
23117	7590	10/17/2007		
NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203			EXAMINER TSEGAYE, SABA	
			ART UNIT	PAPER NUMBER
			2619	
			MAIL DATE	DELIVERY MODE
			10/17/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/658,756

Applicant(s)

ALM ET AL.

Examiner

Saba Tsegaye

Art Unit

2619

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Response to Amendment*

1. This Office Action is in response to the amendment filed 07/26/07. Claims 1-30 are pending. Currently no claims are in condition for allowance.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-11 and 15-26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification does not adequately describe, "the first and the second amount of information **may include all of the buffered information**" as disclosed in claims 1 and 15.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Art Unit: 2619

Claim 12, line 4, the phrase "the first mobile" lacks antecedent basis.

Claim 27 line 4, the phrase "the first mobile" lacks antecedent basis.

6. Regarding claims 1 and 15, the phrase "**may include**" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

*Claim Rejections - 35 USC § 102*

7. Claims 1-5 and 15-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Schieder et al. (EP 1139605 A1).

Regarding claim 1, Schieder discloses a method for use in a radio network that employs adaptive antennas, comprising:

for a connection with a first mobile station, determining an amount of information to be transmitted in an uplink direction by the first mobile station to the radio network (page 7, lines line 7-14);

determining a first permission or a second permission for the first mobile station based on the buffered amount of information (in association with each transferred data packet a **transmitter queue length information is transmitted to a network controller**; on the basis of the received length information a network side transmission resources controller **determines transmission resources for the data packet transfer on the uplink connection**);

if the amount of uplink information is less than a predetermined value, sending to the first mobile station a permission to transmit a first amount of information (page 7, lines line 14-24); and

if the buffered amount of uplink information is equal to or exceeds the predetermined value, sending to the first mobile station a permission to transmit the second amount of information greater than the first amount to reduce a number of times permission to transmit must be sent to the first mobile station (page 7, lines line 7-56; if an increasing number of data packets is detected in the transmitter queue, the transmission resources controller increases the transmission resources such that a **maximum number of data packets are transmitted in one uplink frame**);

wherein the first amount of information or the second amount information may include all of the buffered information (0044); and

wherein the first mobile station transmits the amount information in accordance with the permission transmitted to the first mobile station (0044-0045).

Regarding claim 2, Schieder discloses the method, wherein the permission to transmit is a flag (page 3, 0016).

Regarding claim 3, Schieder discloses the method wherein the permission to transmit is an uplink state flag (USF) (page 3, 0016).

Regarding claim 4, Schieder discloses the method wherein if the amount of uplink information is less than the predetermined value, a lower USF granularity is sent to the first

Art Unit: 2619

mobile station, and if the amount of uplink information is equal to or exceeds the predetermined value, a higher USF granularity is sent to the first mobile station (page 7; 0043-0046).

Regarding claim 5, Schieder discloses the method wherein the lower USF granularity is a granularity of one USF per one radio block to be transmitted uplink, and the higher USF granularity is a granularity of one USF per four radio blocks to be transmitted uplink (page 7; 0043-0046).

Regarding claim 15, Schieder discloses apparatus for use in a radio network and configured to communicate with at least one radio base station that employs adaptive antennas, comprising:

- a connection controller for establishing a connection with a first mobile station by way of the radio base station (see fig. 1);

- a data controller configured to perform the following tasks:

- determine a buffered amount of information to be transmitted in an uplink direction by the first mobile station to the radio base station (page 7, lines line 7-14);

- determine a first permission or a second permission for the first mobile station based on the buffered amount of information (in association with each transferred data packet a **transmitter queue length information is transmitted to a network controller**; on the basis of the received length information a network side transmission resources controller **determines transmission resources for the data packet transfer on the uplink connection**);

Art Unit: 2619

if the buffered amount of uplink information is less than a predetermined value, generate a message for the first mobile station including the first permission to transmit a first amount of information (page 7, lines line 14-24); and

if the buffered amount of uplink information is equal to or exceeds the predetermined value, generate a message for the first mobile station including the second permission to transmit a second amount of information greater than the first amount to reduce a number of times a permission to transmit must be sent to the first mobile station (page 7, lines line 7-56; if an increasing number of data packets is detected in the transmitter queue, the transmission resources controller increases the transmission resources such that a **maximum number of data packets are transmitted in one uplink frame**);

wherein the first amount of information or the second amount information may include all of the buffered information (0044); and

wherein the first mobile station transmits the amount information in accordance with the permission transmitted to the first mobile station (0044-0045).

Regarding claim 16, Schieder discloses the apparatus wherein the permission to transmit is a flag (page 3, 0016).

Regarding claim 17, Schieder discloses the apparatus in claim 16, wherein the permission to transmit is an uplink state flag (USF) (page 3, 0016).

Art Unit: 2619

Regarding claim 18, Schieder discloses the apparatus wherein if the amount of uplink information is less than the predetermined value, the message includes a lower USF granularity, and if the amount of uplink information is equal to or exceeds the predetermined value, the message includes a higher USF granularity (page 7; 0043-0046).

Regarding claim 19, Schieder discloses the apparatus wherein the lower USF granularity is a granularity of one USF per one radio block to be transmitted uplink, and the higher USF granularity is a granularity of one USF per four radio blocks to be transmitted uplink (page 7; 0043-0046).

Regarding claim 20 Schieder discloses a radio communication system incorporating, further comprising the radio network, the radio base station that employs adaptive antennas and the first mobile station (see fig. 1).

8. Claims 12-14 and 27-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Ball et al. (US 2003/0174687 A1).

Regarding claims 12 and 27, Ball discloses a method for use in a radio network that employs adaptive antennas, comprising: When two pieces of information, with different amounts of coding, are packet in the same data block and are intended for two different antenna beams, the beam pointing in the direction of the mobile with the least coding should be used for the transmission



Art Unit: 2619

determining whether first information with a first amount of coding is to be sent in a downlink direction from the radio network to the first mobile station associated with a first antenna beam (0009);

determining whether second information with a second amount of coding less than the first amount of coding is to be transmitted in a downlink direction from the radio network to a second mobile station associated with a second antenna beam (00099; claim 1);

combining the first and the second information in a data block; and transmitting the data block in the second antenna beam (0007-009).

Regarding claims 13 and 28, Ball discloses the method wherein the first information is permission to transmit uplink information and the second information is payload information, the method further comprising: storing the permission to transmit uplink information for plural mobile stations; storing the payload information for plural mobile stations; determining an antenna beam associated with each of the mobile stations; identifying the permission to transmit and payload information for one of the mobile stations; and sending the permission to transmit and payload information in a data block to the one mobile station using the associated antenna beam (see claim 1 and 0007-0009).

Regarding claims 14 and 29, Ball discloses the method, further comprising: identifying permission to transmit and payload information for different mobile stations associated with a same antenna beam, and sending the permission to transmit and payload information in a data block to the different mobile stations using the same antenna beam (0006-0007).

Regarding claim 30, Ball discloses a radio communications system further comprising the radio network, an antenna array for generating the first and second antenna beams, and the first and second mobile stations, wherein the node is a base station control node coupled to or coincident with the radio base station (see figs. 1 and 6).

***Claim Rejections - 35 USC § 103***

9. Claims 6-9, 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schieder et al.

Schieder discloses all the claim limitation as stated above. Further, Schieder discloses that the GPRS MAC layer is responsible for providing efficient multiplexing of data and control signaling on the uplink and downlink connection. However, Schieder does not disclose transmitting control information, which has different level of coding, for a second subscriber station.

Ball teaches a method for transmitting data between a numbers of subscriber stations, which use the same time slot. A base station transmits payload data which is intended for a first of the subscriber station and control information for second subscriber station in a given time slot with the control information being coded with different level than the payload data.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement different level coding that is to be transmitted in downlink directions as taught by Ball into the radio communications system of Schieder in order to provide more efficient communications system that increases the processing capability at the receiver system and allows correct reception of the control information.

10. Claims 10, 11, 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schieder et al. in view of Forssen et al. (US 5,838,674).

Schieder discloses all the claim limitation as stated above. Further, Schieder discloses that the GPRS MAC layer is responsible for providing efficient multiplexing of data and control signaling on the uplink and downlink connection. However, Schieder does not disclose combining the control information with dummy information.

Forssen teaches a method for transmitting data between a numbers of subscriber stations, which use the same time slot in successive frames jointly. A mobile unit tuning to a broadcast carrier, when positioned at any **location within the cell** (see figs 2-4), is able to detect signal energy of either a control signal or one of the concurrently transmitted downlink signals. If the traffic channels defined upon the broadcast carrier are not being used to transmit downlink signals to particular mobile subscriber units, "dummy" signals are instead transmitted (column 4, lines 17-34).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use dummy signal in place of downlink signals as taught by Forssen into the radio communications system of Schieder in order to provide more efficient communications system.

#### ***Response to Arguments***

11. Applicant's arguments with respect to claims 1-30 have been considered but are moot in view of the new ground(s) of rejection.

Art Unit: 2619

12. Applicant's arguments filed 07/26/07 have been fully considered but they are not persuasive. Applicant argues (Remarks, page 18) that Schieder does not disclose, "determining a first permission or a second permission for the first mobile station based on buffered amount of information" as amended claims 1 and 15. Examiner respectfully disagrees. Schieder clearly discloses that on the basis of received **queue length** information (from subscriber terminal) a network side transmission resources controller **determines transmission resources for the data packet transfer on the uplink connection** (see abstract; 0041, 0043). Further, Applicant argues that the data transmission approach in claims 1 and 15 contradicts the major goal of Schieder, namely, to avoid having an empty transmit buffer. Both claims 1 and 15 recite, "wherein the first amount of information or the second amount of information may include all of the buffered information." Examiner respectfully disagrees with Applicant assertion. Schieder discloses that the transmission resource **controller increases** the transmission resources such that **a maximum number** of data packet are transmitted in one uplink frame (0045). Furthermore, Schieder discloses that the mobile sends the entire data packet when a physical connection-terminating device is adapted to terminate the physical connection (claimed the amount of information may **includes all of the buffered information** (see 0044)).

Applicant argues (Remarks, page 19) that Ball does not disclose, " the first and second information are combined in one data block and that data block is transmit on just the second antenna beam." Examiner respectfully disagrees with Applicant contention. Ball clearly discloses that if the difference in the azimuth angles of the subscriber station MS1, MS2 is in the same order of magnitude as the beam angle of the a lobe, *then both subscriber station may actually be supplied to a sufficient extent by the stronger lobe 8 of the first radio signal* (see 0034, 0012).

Art Unit: 2619

Applicant, further, argues (Remarks, page 20) that there is no teaching in Forssen of dummy information being associated with a different antenna beam that the first information associated with a first antenna beam. Examiner respectfully disagrees. As shown in fig. 4, antenna beam patterns 44 and 46 can be formed to transmit separate signals between a radio base station and two or more mobile station units. As shown in Fig. 5, uplink signal transmitted to a base station 12 include information at least the **angular positioning** of subscriber units. Responsive to such information, a control device 72 determines antenna beam configuration to permit concurrent communication with more than one remotely positioned mobile subscriber unit. Furthermore, Forssen teaches that two or more separate signals are concurrently transmitted upon a single TDMA (column 3, lines 65-column 4, lines). In addition, Forssen teaches that dummy or pseudo communication signals are transmitted in place of downlink signals. Dummy signal are modulated **with any information** and transmitted at selected signal strength levels.

### *Conclusion*

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

Art Unit: 2619

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Saba Tsegaye whose telephone number is (571) 272-3091. The examiner can normally be reached on Monday-Friday (7:30-5:00), First Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wing Chan can be reached on (571) 272-7493. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Saba Tsegaye  
Examiner  
Art Unit 2619

ST  
October 12, 2007

  
10/15/07  
WING CHAN  
SUPERVISORY PATENT EXAMINER